

Message Text

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ACTION EB-07

INFO OCT-01 CIAE-00 COME-00 DODE-00 NSAE-00 TRSE-00 EUR-12

ERDA-05 ISO-00 MC-02 ACDA-05 /032 W

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FM USMISSION OECD PARIS

TO SECSTATE WASH DC PRIORITY 6442

C O N F I D E N T I A L SECTION 01 OF 02 OECD PARIS 09004

EXCON

E.O. 11652: XGDS1

TAGS: ESTC, COCOM

SUBJECT: COCOM LIST REVIEW: IL 1587 - QUARTZ CRYSTALS

REFS: A. COCOM DOC REV (74) 1587/1

B. TTG 2/28/75

C. COCOM DOC REV (74) 1587/2

L. REF. C, CANADIAN PROPOSALS FOR SUBITEMS A AND B,
WAS CIRCULATED APRIL 9. SINCE ITEM IS SCHEDULE FOR
ROUND II DISCUSSION ON APRIL 17, WE QUOTE PERTINENT
PORTIONS BELOW:

AMEND SUBITEM (A)(1) TO READ:

(1) DESIGNED FOR OPERATION OVER A TEMPERATURE RANGE
WIDER THAN 225 DEGREE F (125 DEGREE C).

AMEND SUBITEM (B) TO READ:

(1) DESIGNED FOR OPERATION OVER A TEMPERATURE RANGE
WIDER THAN 288 DEGREE F (160 DEGREE C).

(2) FOR TEMPERATURE COMPENSATED CRYSTAL OSCILLATORS,
HAVING A FREQUENCY STABILITY OF #0.0003 PERCENT OR
BETTER OVER THEIR RATED OPERATING TEMPERATURE

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RANGE.

DELETE PARAS (3) AND (4) AND ADD THE FOLLOWING:

(3) FOR NON-TEMPERATURE COMPENSATED CRYSTAL OSCILLATORS,
HAVING A FREQUENCY STABILITY OF 0.0001 PERCENT OR
BETTER PER DEGREE CENTIGRADE CHANGE WITHIN THE RATED
OVEN TEMPERATURE RANGE.

JUSTIFICATION:

A. TCXO'S (TEMPERATURE CONTROLLED CRYSTAL OSCILLATORS)
ARE REQUIRED TO HAVE STABILITIES OF 1 PART PER
MILLION (0.0001 PERCENT) FOR MILITARY MAN PACK
RADIOS. SINGLE SIDEBAND FIXED TRANSMITTERS ARE EX-
PECTED TO ATTAIN STABILITIES OF THIS DEGREE. THE
RELAXATION FROM 0.0005 PERCENT TO 0.0003 PERCENT
THEREFORE APPEARS REASONABLE FOR TCXO'S AND EQUALS
THE STABILITY REQUIRED FOR MOBILE RADIO OPERATION
IN SSB MODE.

B. OVEN CONTROLLED CRYSTALS HAVE QUOTED STABILITIES
DEPENDING UPON THE OVEN SETTING RANGE, AND UPON THE
ACCURACY OF THE OVEN TO MAINTAIN THE CRYSTAL TEMPER-
ATURE WITHIN LIMITS. THEREFORE, AN OVEN MAY BE SET,
FOR EXAMPLE, AT ANY FIXED TEMPERATURE BETWEEN 70
DEGREE C AND 80 DEGREE C (QUOTED AS 75 DEGREE PLUS/
MINUS 5 DEGREE C), AND CRYSTALS SPECIFIED TO OPE-

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C O N F I D E N T I A L SECTION 02 OF 02 OECD PARIS 09004

RATE WITHIN THEIR PERFORMANCE CHARACTERISTICS AT A SET TEMPERATURE IN THIS RANGE. THE CRYSTAL STABILITY IS THEREFORE PROPOSED TO BE ESTABLISHED UPON A FREQUENCY STABILITY PER DEGREE CENTIGRADE OF OVEN VARIATION. FURTHERMORE, FOR CRYSTAL OPERATION UNDER WIDE AMBIENT TEMPERATURE RANGES, THE OVEN AND IN SOME CASES, DOUBLE OVEN REQUIREMENTS ARE MORE DEMANDING, AND CERTAINLY SURPASS THE ACCEPTABLE LIMITS OF HEATING AND COOLING ANCILLARY CONTROL SYSTEMS NECESSARY TO ACHIEVE SUCH STABILITIES IN MILITARY SERVICE.

TYPICAL SPECIFICATIONS MAY BE FOUND, FOR EXAMPLE, FOR THE FOLLOWING:

TYPE CR75U - 2.5 PPM OR 0.00025 PERCENT
TYPE CR65U - 2.5 PPM OR 0.00025 PERCENT
TYPE CR57U - 3 PPM OR 0.0003 PERCENT

WHERE TEMPERATURE SHIFT ALLOWANCE WITHIN OVENS MAY VARY AS MUCH AS 4 OR 5 DEGREES CENTIGRADE. TO ACHIEVE SUCH STABILITIES, A RATED STABILITY OF 0.0001 PERCENT PER DEGREE CENTIGRADE SHIFT IN TEMPERATURE IS NECESSARY.

2. ACTION REQUESTED: PRIORITY TECHNICAL ASSESSMENT AND CONFIDENTIAL

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INCORPORATION, IF POSSIBLE, OF GUIDANCE ON THIS REVISED PROPOSAL IN INSTRUCTIONS TO BE SENT BY APRIL 16.
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Message Attributes

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Margaret P. Grafeld
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